IN THE CLAIMS

1. (Previously Presented) A method for determining if a pulmonary nodule is malignant, comprising the steps of:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features, wherein

the step of obtaining the patient features consists of obtaining the sex of the patient; and

the step of extracting image features consists of extracting effective diameter of the pulmonary nodule, contrast of the pulmonary nodule, overlap measure of two gray-level histograms for the inside and outside regions of a segmented nodule of the medical image, overlap measure of two gray-level histograms for the inside and outside region of a segmented nodule of an edge gradient of the medical image, radial gradient index for an inside region of a segmented nodule of the medical image, and peak value of a histogram for an inside regions of a segmented nodule of an edge gradient of the medical image.

2. (Original) The method of claim 1, wherein the step of obtaining at least one computed tomography medical image comprises obtaining a medical X-ray image.

3. (Original) The method of claim 2, wherein the step of obtaining at least one computed tomography medical image comprises obtaining at least one low-dose computed tomography image.

4. (Original) The method of claim 1, wherein the step of obtaining at least one patient feature comprises obtaining at least one of sex and age of the patient having the pulmonary nodule.

5. (Original) The method of claim 1, wherein the step of extracting image features comprises at least one of the steps of:

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule.

6. (Original) The method of claim 5, wherein step of identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule comprises at least one of the following steps:

identifying the effective diameter of the outline;

identifying the degree of circularity of the outline;

identifying the degree of ellipticity of the outline;

identifying the degree of irregularity of the outline;

identifying the root-mean-square variation of the power spectrum of the outline; and

identifying the power spectrum of the outline.

7. (Original) The method of claim 5, wherein the step of identifying image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises:

identifying the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

identifying the magnitude of line patterns for outside region of a segmented nodule of the medical image.

8. (Original) The method of claim 5, wherein the step of identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises:

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

identifying tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

identifying tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.

9. (Canceled)

10. (Original) The method of claim 1, wherein the step of extracting image features consists of extracting the effective diameter of the pulmonary nodule and the contrast of the pulmonary nodule.

11. (Original) The method of claim 1, wherein the step of obtaining at least one medical image comprises:

obtaining three medical images; and

the step of evaluating if the pulmonary nodules are malignant is based on the examination of the three medical images.

12. (Previously Presented) A computer readable medium storing computer program instructions for determining if a pulmonary nodule is malignant, which when used to program a computer to cause the computer to perform the steps of:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features, wherein

the step of obtaining the patient features consists of obtaining the sex of the patient; and

the step of extracting image features consists of extracting effective diameter of the pulmonary nodule, contrast of the pulmonary nodule, overlap measure of two gray-level histograms for the inside and outside regions of a segmented nodule of the medical image, overlap measure of two gray-level histograms for the inside and outside region of a segmented nodule of an edge gradient of the medical image, radial gradient index for an inside region of a segmented nodule of the medical image, and peak value of a histogram for an inside regions of a segmented nodule of an edge gradient of the medical image.

13. (Currently Amended) A system for ~~implementing the method recited in an one of claims 1-11~~ determining if a pulmonary nodule is malignant, comprising:

a mechanism configured to obtain at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to obtain at least one patient feature of a patient having the pulmonary nodule;

a mechanism configured to extract image features of the pulmonary nodule from the at least one computed tomography medical image; and

a mechanism configured to evaluate whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features, wherein

the mechanism configured to obtain the patient features consists of a mechanism for obtaining the sex of the patient; and

the mechanism configured to extract image features consists of a mechanism configured to extract effective diameter of the pulmonary nodule, contrast of the pulmonary nodule, overlap measure of two gray-level histograms for the inside and outside regions of a segmented nodule of the medical image, overlap measure of two gray-level histograms for the inside and outside region of a segmented nodule of an edge gradient of the medical image, radial gradient index for an inside region of a segmented nodule of the medical image, and peak value of a histogram for an inside regions of a segmented nodule of an edge gradient of the medical image.

14. (Canceled)

15. (Previously Presented) The computer readable medium of claim 12, wherein the step of obtaining at least one computed tomography medical image comprises obtaining a medical X-ray image.

16. (Previously Presented) The computer readable medium of claim 15, wherein the step of obtaining at least one computed tomography medical image comprises obtaining at least one low-dose computed tomography image.

17. (Previously Presented) The computer readable medium of claim 12, wherein the step of obtaining at least one patient feature comprises obtaining at least one of sex and age of the patient having the pulmonary nodule.

18. (Previously Presented) The computer readable medium of claim 12, wherein the step of extracting image features comprises at least one of the steps of:

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule.

19. (Previously Presented) The computer readable medium of claim 18, wherein step of identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule comprises at least one of the following steps:

identifying the effective diameter of the outline;

identifying the degree of circularity of the outline;

identifying the degree of ellipticity of the outline;

identifying the degree of irregularity of the outline;

identifying the root-mean-square variation of the power spectrum of the outline; and

identifying the power spectrum of the outline.

20. (Previously Presented) The computer readable medium of claim 18, wherein the step of identifying image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises:

identifying the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

identifying the magnitude of line patterns for outside region of a segmented nodule of the medical image.

21. (Previously Presented) The computer readable medium of claim 18, wherein the step of identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises:

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

identifying tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

identifying tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.

22. (Previously Presented) The computer readable medium of claim 12, wherein the step of extracting image features consists of extracting the effective diameter of the pulmonary nodule and the contrast of the pulmonary nodule.

23. (Previously Presented) The computer readable medium of claim 12, wherein the step of obtaining at least one medical image comprises:

obtaining three medical images; and

the step of evaluating if the pulmonary nodules are malignant is based on the examination of the three medical images.

24. (Currently Amended) The system of claim 13, wherein the mechanism configured to obtain ~~for obtaining~~ at least one computed tomography medical image comprises a mechanism configured to obtain ~~for obtaining~~ a medical X-ray image.

25. (Currently Amended) The system of claim 24, wherein the mechanism configured to obtain ~~for obtaining~~ at least one computed tomography medical image comprises a mechanism configured to obtain ~~for obtaining~~ at least one low-dose computed tomography image.

26. (Currently Amended) The system of claim 13, wherein the mechanism configured to obtain ~~for obtaining~~ at least one patient feature comprises a mechanism configured to obtain ~~for obtaining~~ at least one of sex and age of the patient having the pulmonary nodule.

27. (Currently Amended) The system of claim 13, wherein the mechanism for extracting image features comprises at least one of:

a mechanism configured to identify ~~for identifying~~ image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

a mechanism configured to identify ~~for identifying~~ image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule.

28. (Currently Amended) The system of claim 27, wherein ~~a~~ the mechanism configured to identify ~~for identifying~~ image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule comprises at least one of the following:

a mechanism configured to identify ~~for identifying~~ the effective diameter of the outline;

a mechanism configured to identify ~~for identifying~~ the degree of circularity of the outline;

a mechanism configured to identify ~~for identifying~~ the degree of ellipticity of the outline;

a mechanism configured to identify ~~for identifying~~ the degree of irregularity of the outline;

a mechanism configured to identify ~~for identifying~~ the root-mean-square variation of the power spectrum of the outline; and

a mechanism configured to identify ~~for identifying~~ the power spectrum of the outline.

29. (Currently Amended) The system of claim 27, wherein the mechanism configured to identify ~~for identifying~~ image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises:

a mechanism configured to identify ~~for identifying~~ the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

a mechanism configured to identify ~~for identifying~~ the magnitude of line patterns for outside region of a segmented nodule of the medical image.

30. (Currently Amended) The system of claim 27, wherein the mechanism configured to identify ~~for identifying~~ image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises:

a mechanism configured to identify ~~for identifying~~ radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

a mechanism configured to identify ~~for identifying~~ radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

a mechanism configured to identify ~~for identifying~~ tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

a mechanism configured to identify ~~for identifying~~ tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.

31. (Currently Amended) The system of claim 13, wherein the mechanism configured to extract ~~for extracting~~ image features consists of a mechanism configured to extract ~~extracting~~ the effective diameter of the pulmonary nodule and the contrast of the pulmonary nodule.

32. (Currently Amended) The system of claim 13, wherein the mechanism configured to obtain ~~for obtaining~~ at least one medical image comprises:

a mechanism configured to obtain ~~for obtaining~~ three medical images; and

the mechanism configured to evaluate ~~for evaluating~~ if the pulmonary nodules are malignant is based on the examination of the three medical images.

33. (Previously Presented) A method for determining if a pulmonary nodule is malignant, comprising:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the step of extracting image features comprises at least one of the steps of

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the

at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule, and

wherein the step of identifying image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises

identifying the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

identifying the magnitude of line patterns for outside region of a segmented nodule of the medical image.

34. (Previously Presented) A method for determining if a pulmonary nodule is malignant, comprising:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the step of extracting image features comprises at least one of the steps of

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule, and

the step of identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

identifying radial gradient index computed by the mean absolute value of a

radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

identifying tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

identifying tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.

35. (Previously Presented) A computer readable medium storing computer program instructions for determining if a pulmonary nodule is malignant, which when used to program a computer to cause the computer to perform the steps of:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the step of extracting image features comprises at least one of the steps of

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule, and

the step of identifying image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises

identifying the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

identifying the magnitude of line patterns for outside region of a segmented nodule of the medical image.

36. (Previously Presented) A computer readable medium storing computer program instructions for determining if a pulmonary nodule is malignant, which when used to program a computer to cause the computer to perform the steps of:

obtaining at least one computed tomography medical image of the pulmonary nodule;

obtaining at least one patient feature of a patient having the pulmonary nodule;

extracting image features of the pulmonary nodule from the at least one computed tomography medical image; and

evaluating whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the step of extracting image features comprises at least one of the steps of

identifying image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

identifying image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

identifying image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule, and

the step of identifying image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises

identifying radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

identifying radial gradient index computed by the mean absolute value of a

radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

identifying tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

identifying tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.

37. (Currently Amended) A system for determining if a pulmonary nodule is malignant, comprising:

a mechanism configured to obtain ~~for obtaining~~ at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to obtain ~~for obtaining~~ at least one patient feature of a patient having the pulmonary nodule;

a mechanism configured to extract ~~for extracting~~ image features of the pulmonary nodule from the at least one computed tomography medical image; and

a mechanism configured to evaluate ~~for evaluating~~ whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the mechanism configured to evaluate ~~for extracting~~ image features comprises at least one of

a mechanism configured to identify ~~for identifying~~ image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on

linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

a mechanism configured to identify ~~for identifying~~ image features based on the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule,

wherein the mechanism configured to identify ~~for identifying~~ image features based on the linear patterns of the at least one computed tomography medical image of the pulmonary nodule comprises

a mechanism configured to identify ~~for identifying~~ the magnitude of line patterns for inside region of a segmented nodule of the medical image; and

a mechanism configured to identify ~~for identifying~~ the magnitude of line patterns for outside region of a segmented nodule of the medical image.

38. (Currently Amended) A system for determining if a pulmonary nodule is malignant, comprising:

a mechanism configured to obtain ~~for obtaining~~ at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to obtain ~~for obtaining~~ at least one patient feature of a patient having the pulmonary nodule;

a mechanism configured to extract ~~for extracting~~ image features of the pulmonary nodule from the at least one computed tomography medical image; and

a mechanism configured to evaluate ~~for evaluating~~ whether the pulmonary nodule is malignant based on an examination of a total of seven of the patient or image features,

wherein the mechanism configured to identify ~~for extracting~~ image features comprises at least one of

a mechanism configured to identify ~~for identifying~~ image features based on an outline of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on linear patterns of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on gray-level distribution of the at least one computed tomography medical image of the pulmonary nodules;

a mechanism configured to identify ~~for identifying~~ image features based on

the gray level distribution of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule;

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of the at least one computed tomography medical image of the pulmonary nodule; and

a mechanism configured to identify ~~for identifying~~ image features based on the relationship between two histograms in the inside and outside regions of the segmented nodule of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule,

wherein the mechanism configured to identify ~~for identifying~~ image features based on edge orientation of an edge gradient of the at least one computed tomography medical image of the pulmonary nodule comprises

a mechanism configured to identify ~~for identifying~~ radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the inside of a segmented nodule of the medical image;

a mechanism configured to identify ~~for identifying~~ radial gradient index computed by the mean absolute value of a radial edge gradient projected along a radial direction for the outside of a segmented nodule of the medical image;

a mechanism configured to identify ~~for identifying~~ tangential gradient index computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the inside of a segmented nodule of the medical image; and

a mechanism configured to identify ~~for identifying~~ tangential gradient computed by the mean absolute value of a tangential edge gradient projected along a tangential direction for the outside of a segmented nodule of the image.